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The Model of Utilizing Information Technology for Strategic Planning of Posyandu Electronic Information Resources

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ABSTRACT
Posyandu is an integrated health service post where the post is a Community-Based Health Effort (UKBM) held for the community. As a means for the community to obtain basic health services, especially for mothers and children. In its service posyandu there are still deficiencies in services such as registration of services and counseling is still done conventionally, and recording of health services to mothers and children in the process is still using the method of service recorded in a Health Towards Card (KMS) . To resolve the above problems required an artificial intelligence-based information technology (*artificial intelligence*) by using a database or database knowledge (*knowledge base*) . In order for the Posyandu Electronics to run well, human resource readiness is needed to manage. By because it needs a model of information technology through the Electronic IHC as a solution in resolving problems of maternal and child health services . Model utilization of electronic information technology posyandu this will be known association with the use of information technology karekteristi factor K , attitude, performance, and training conducted for health workers and cadres Posyandu. Penelitian a research descriptive dngan capture qualitative data through questionnaires were processed by using structural equation modeling through Amos, Liserel and SPSS. The final result of this study is the creation of a model for the use of information technology through Electronic Posyandu as a means of conducting maternal and child health services to prevent , inhibit and reduce the ratio of maternal and child mortality in Indonesia.
Keywords: *model, strategic design, information resources, Electronic Posyandu, health services*

1. INTRODUCTION
The population growth in Indonesia, according to the BPS (Central Bureau of Statistics) in 2015 was $ 2 5 5:46 1 .686 soul population continues to increase . [1] M ccording to the data of National Development Planning in 2035. In 2013, 305 652 400 inhabitants be affected by a high life expectancy. [2] Indicators to maintain life expectancy require health empowerment programs such as Community-Based Health Efforts , one of which is the Integrated Service Post. [12] In addition to the need for a health service program for the community, a balance between health facilities and infrastructure is also needed , because the reality in the field is that the number of facilities and infrastructure is not balanced, namely the number of puskesmas in Indonesia as of December 2015 totaling 9,655 units, 2,228 units of hospitals, whereas The number of patients according to the data and information center of the Republic of Indonesia Ministry of Health in 2015 population data that require health facilities is approximately 192,250,309 people , so it can be concluded that 1 health service must serve around 16,178 patients. [8]

To overcome the above problems, a community health empowerment program such as Posyandu is needed to bridge the decline in life expectancy and to bridge the lack of facilities and infrastructure in overcoming health problems. IHC in dealing with public health, especially the health of mothers and children are still having problems, among others, the implementation schedule is erratic, the material discourse can only be heard in real time and health services in posyandu still using way konvensionalm so inf ormasi produced is not bi s a directly used as accountability to d carbuncle dinas are related to decision-making.

So that the problems mentioned above can be handled properly and produce information that has the right accuracy and can be accessed via mobile phones, laptops or tablets for accountability in decision making, then a model of using information technology is needed to build an electronic Posyandu that aims to maintain health mother and child in Indonesia.

2. LITERATURE REVIEW

2.1 Demographic, Personality, Cognitive Style

Robbins in 2007 conducted a study where variables at the individual level could include biographical characteristics, ability in personality and learning. Biographical characteristics can include marital status, u bolts , education , level of organization , dependents, and tenure within an organization. [13]

Igbaria and Parasuraman in 1989 also said in their research that examining a relationship between individual characteristics and concerns about computers and attitudes towards computers it can be concluded that the individual characteristics factors included were gender, age or age, education and management level. Gender collaborates and correlates with concerns about computers. [5] [6]

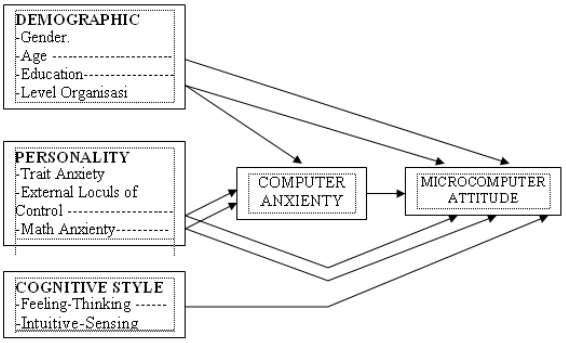

Figure 1 Individual Characteristics Model, *Computer Anxienty* and *Attitude*

Sources: Igbaria and Parasuraman 1989; 382

2.2 Computer Attitude and Computer Usage

Rahayuningsih (2008: 1) defines that attitude is a simple expression of how people like or dislike some things. It is assumed as certain orientations towards the response that occurs. Connecting attitude towards the use of kompter m ccording to the results of research and Nevell Ferguson (1996; 113) is a liking for computers that do not directly affect the use of computers. [4]

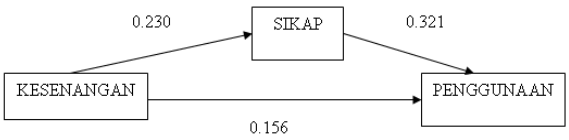

Figure 2 Koefisien Path Model Kesenangan, Sikap dan Penggunaan

Sources: Ferguson, 1996; 121

2.3 Application of Information Technology in the Health Sector

Electronic Posyandu (E-Posyandu) is a means for cadres or health workers to provide maximum services to the community, especially for mothers and children. By using E-Posyandu all public health data, especially mothers and children, are stored in a knowledge database and accessed using an artificial intelligence base so that child development, child health, and public health can be monitored continuously. [8]

3. RESEARCH METHOD

3.1. Research Object

The object of research of study as an object are volunteers and health workers organizer Posyandu throughout Indonesia, represented by a minimum of three (3) provinces.

3.2. Population

The subject or object must have certain characteristics, namely posyandu cadres and posyandu administrators throughout Indonesia, represented by at least 3 (three) provinces.

3.3. Samples

Using primary data and secondary data from answers to questionnaires filled out by research objects or research respondents namely posyandu cadres throughout Indonesia. With the existence of research samples taken through questionnaire answers aimed at analyzing whether the characteristics of individual users of information technology, attitude factors towards the service of information technology users, information technology user training factors, information technology resource utilization factors, and information technology user performance factors affect the use of information technology on public health services, especially mothers and children. [7]

3.4. Sampling Technique

The technique used is *proportional sampling* where the method of taking samples conducted by researchers requires some consideration (Arkunto; 2007). The number of research samples is based on the number of sub - districts in 3 (three) Provinces, namely 16 provinces, with each province taken 35 population from each sub-district, so the total population taken is 1680 populations. If the desired proportion level is 50%, with an error rate of 1%, then using the Lamenshow formula approach, the number of research samples will be 252 people. Thus the number of research samples that have been set up will refer to 252 people.

3.5. Research Time and Place

The research to build a model of utilizing information technology on public health services, especially mothers and children, for the strategic design of Electronic Posyandu information resources will be carried out in 48 sub-districts in Indonesia.

3.6. Data Collection

The research model of information technology utilization of public health services, especially mothers and children to design strategic IHC Electronic information resources to prevent and lower the mortality rate of mothers and children in Indonesia are using the primary data and secondary data by using the following steps:

1. Primary Data Collection Stage
   This collection is carried out from cadres and officers for interviews.
2. Secondary Data Collection Stage

This collector is done by gathering information and data through posyandu notes in the previous year.

3.7. Measurement of Research Variables

1. As a tool for measuring variables is a questionnaire, because the questionnaire as an instrument in research in data collection. Questionnaires in a study that are used as instruments must have measurable and reliable characteristics, so the way to absorb, obtain or obtain information must be really relevant.
2. This study uses qualitative data to determine the model of information technology utilization of maternal and child health services for the strategic design of Electronic Posyandu information resources , by knowing respondents' responses that have been taken through questionnaires then the results will be analyzed whether individual characteristics, attitudes towards services, training of information technology users , the utilization of information technology resources, and the performance of information technology users has an effect on the utilization of information technology in maternal and child health services.

The criteria used to generate quantitative data that is made of qualitative data into quantitative data using Lingkert by using a scoring scale to re answer sponden consisting of 1 sam p a i 5 namely : [16]

Table 1 Criteria

No.	Criteria	Score
1	Strongly Disagree (STS)	1
2	Disagree (ST)	2
3	Quite Agree (CS)	3
4	Agree (S)	4
5	Strongly Agree (SS)	5

For measuring variables using the formula:

$$X_i = \frac{X_{i1} + X_{i2} + ...X_{in}}{n}$$

3.8. Variables

The model used is the use of information technology in public health services, especially mothers and children, for the strategic design of Electronic Posyandu information resources as a means of preventing and reducing maternal and child mortality in Indonesia, namely:

1. Independent Variable
   The independent variables in this study are individual characteristics , attitudes toward service, training, utilization of information technology resources, and performance
2. Variable Binder
   The binding variable in this study is the model for the utilization of information technology in public health services, especially mothers and children, for the strategic design of Electronic Posyandu information resources as a means of preventing and reducing maternal and child mortality in Indonesia

3.9. Concepts

Constructs and dimensions studied . A concept (*concepts*) in this study can produce . [16]

1. Individual Characteristics.
   By looking for cash characteristics or traits that are capable of improving the quality of life, which shows a person's differences about motivation, initiative, ability to remain strong in facing tasks, adjusting changes that are closely related to information technology . [13]
2. Computer User Attitude.
   Generating an attitude (attitudes) is an evaluative statement relating to an object, person or event. Attitudes reflect how a person feels something. The attitude here is seen from 3 dimensions, namely cognition, affection and conation. [13]
3. Computer Training .
   Conducted through p roses to acquire certain capabilities of cadres and health workers to assist in maternal and child health services . Training for cadres and health workers with knowledge and skills used in employment. [15]
4. Computer use .
   Is a variety of computer use activities related to work that is the responsibility of employees as reflected in the **function of use, frequency of use and level of dependency** . The usage function is related to planning, making programs, making reports and implementing programs. [15]

3.10. Operational

The model used is the Structural Equation Model to avoid mistakes in conducting data analysis, and also to prevent misunderstandings or differences in views in defining the variables being analyzed. The results of operations carried out by researchers are as the table below .

Table 2 Operational Research Implementation

Variable	Operational Definition	How To Measure And Indicator Variables	Measuring Instruments And Items
Individual Characteristics	Posyandu cadres and health service officers who have high dedication to provide health services to mothers and children	Interview **Indicator Variable** X1.1. Age X1.2. Level of education X1.3. Long Served	Questionnaire **Item** X1.1. Age X1.2. Formal education X1.3. Long Become a Cadre
Attitude Towards Service	Posyandu cadres and health service personnel who have good commitment to provide health services to mothers and children who are shown with good health services, provide health information as clearly as possible, do not make mistakes in health services, are helpful and hardworking	Interview **Indicator Variable** X2.1. Cognitive X2.2. Affective X2.3. Psychomotor	Questionnaire **Item** X2.1.1. Computers reduce a lot of the work that humans do X2.1.2. With Computers Work becomes easy and quickly finished X2.1.3. Provide many opportunities to get the desired information. X2.1.4. Computers prevent financial fraud X2.2.1. Not afraid of making mistakes in using computers. X2.2.2. No problems running application programs. X2.2.3. Find it easy to learn how to use a computer X2.2.4. Love to work using a computer X2.2.5. Feeling confident when using a computer. X2.3.1. If there is a computer then I will definitely try to use it. X2.3.2. Computers increase morale. X2.3.3. I know the exact use of computers in helping my work
Health Services Training	Posyandu cadres and health service workers who have experience in providing health services to mothers and children	Interview **Indicator Variable** X3.1. Training Frequency X3.2. Duration	Questionnaire **Item** X3.1.1. Number of computer training courses that have been attended. X3.2.1. Number of computer training days ever attended.
Utilization of Information Technology Resources	Posyandu cadres and health service workers who have broad insights through the use of information technology in health services to mothers and children who are shown by providing information not only through invitation but through the use of communication technology, want to find references about counseling through health sites.	Interview **Indicator Variable** Y.1.1. Usage Function Y1.2. Usage Frequency Y1.3. Dependency level	Questionnaire **Item** Y1.1.1 To make a work plan. Y1.1.2. Computers for working programs. Y1.1.3. Create and complete work reports. Y1.1.4. To find information. Y1.1.5. Store information data. Y1.2.1 Frequency of use per day Y1.2.2 The duration of daily use Y1.3.1. If the computer is damaged then I cannot work Y1.3.2. My work is much neglected if the computer is often broken
The performance	Posyandu cadres and health service personnel who have the nature to easily carry out activities in health services for mothers and children which are shown by the quality of work.	Interview **Indicator Variable** Y2.1. Quality of results Y2.2. Service quality Y2.3. Punctuality	Questionnaire **Item** Y2.1. In general, the quality of work in accordance with the desired standards. Y2.2. The use of computers causes me to be able to serve well. Y2.3 With a computer, tasks always finish on time

3.11. Data Analysis

1. By using descriptive research analysis to determine the correlation between individual characteristics, attitudes towards services, training, utilization of information technology resources, and performance with health services for mothers and children.
2. To know the description of the assessment is a descriptive analysis to determine the correlation between individual characteristics, attitudes towards services, training, utilization of information technology resources, and performance with health services for mothers and children using analytical tools distribution. [16]

3.12. Structural Equation Modeling

After all the data has gone through operational processes and data analysis techniques then the data is processed using *Structural Equation Modeling* to find out and test causality relationships by measuring a series of construct relationships simultaneously. From this process will produce a multidimensional process with various patterns of relationship with tiered causality which is a collection of statistical techniques that allow testing a series of relationships that are relatively complex and simultaneous

4. RESULTS AND DISCUSSION

4.1 Summary Analysis

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P.	CMIN / DF
Default model	48	1430,913	205	.000	6,980
Saturated model	253	.000	0		
Independence model	22	13928,628	231	.000	60,297

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.028	.813	.769	.658
Saturated model	.000	1,000		
Independence model	.166	267	.197	.244

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.897	.884	.911	.899	.911
Saturated model	1,000		1,000		1,000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.887	.796	.808
Saturated model	.000	.000	.000
Independence model	1,000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	1225,913	1109,699	1349,582
Saturated model	.000	.000	.000
Independence model	13697,628	13314,154	14087,413

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	2,897	2,482	2,246	2,732
Saturated	.000	.000	.000	.000

Model	FMIN	F0	LO 90	HI 90
model				
Independence model	28,196	27,728	26,952	28,517

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.110	.105	.115	.000
Independence model	.346	342	.351	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	1526,913	1531,601	1728,732	1776,732
Saturated model	506,000	530,709	1569,753	1822,753
Independence model	13972,628	13974,777	14065,128	14087.128

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	3,091	2,856	3,341	3,100
Saturated model	1,024	1,024	1,024	1,074
Independence model	28,285	27.508	29,074	28,289

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	83	89
Independence model	10	11

Execution time summary

Minimization: .079
Miscellaneous: 5640
Bootstrap: .000
Total: 5,719

4.2 Model of E-Posyandu Information Technology Utilization

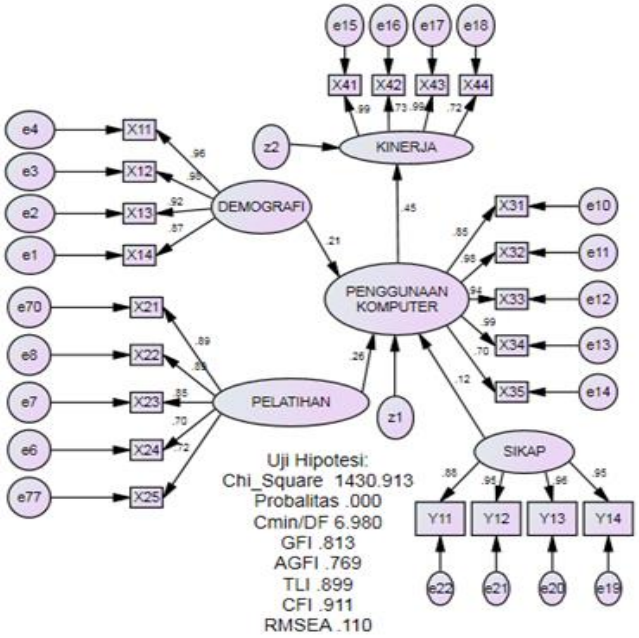

Figure 4.1 : E-Posyandu Information Technology Utilization Model

4.3 Information Results for the E-Posyandu Information Technology Utilization Model

The conclusion of the posyandu electronic information technology utilization model is the need for software engineering or electronic posyandu system for the performance of posyandu cadres and health workers supported by demographics, attitudes toward service, training in the use of Posyandu electronic engineering or electronic systems.

5. CONCLUSION & SUGGESTIONS

5.1. Conclusion

Results from Model Utilization of Information Technology Public Health Services Especially Women & Children For P erancangan S certain strategic S umber D aya I nformation E lektronik IHC is able to create a model of information technology Electronic IHC as a basis for the development of software engineering Electronics Prosyandu as a tool in health care especially maternal and child health services at the Integrated Service Post (Pusyandu) in Indonesia. With the Electronic Information Technology utilization model, the Posyandu will know how much influence the use of information technology in the world of health, especially maternal and child health in information technology-based health services.

5.2. Suggestions

Results Model Utilization of Information Technology Public Health Services Especially Women & Children For P erancangan S certain strategic S umber D aya I nformation E lektronik IHC is a model of the utilization of information technology can be used as a reference for the development of software engineering electronic systems posyandu, so that public health services, especially services maternal and child health and all information about maternal and child health services can be monitored properly. With the monitoring of maternal and child health, the population growth rate can be maintained well and will produce the next generation of the nation that is physically and mentally healthy

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